

CLAIMS

1. Two-component adhesive **K** comprising of a component **K1** and a component **K2**, characterized in that the component **K1** comprises
 - at least one epoxy resin **A** with more than one epoxy group per molecule on the average;
 - at least one epoxy adduct **B**, each with more than one epoxy group and more than one hydroxyl group per molecule on the average;
 - at least one product **F** of reaction between an epoxy adduct **B** and a compound **C** with at least two isocyanate groups, and
 - at least one curing agent **D** for epoxy resins, which is activated by elevated temperature; and

the component **K2** comprises at least one compound **E** with at least two isocyanate groups;

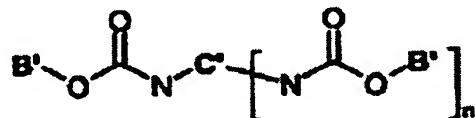
and where the epoxy adduct **B** is an epoxy adduct **B1**, which can be obtained from at least one dicarboxylic acid and at least one diglycidyl ether;

and is optionally combined with an epoxy adduct **B2**, which can be obtained from at least one bis(aminophenyl)sulfone isomer or at least one aromatic alcohol and at least one diglycidyl ether.
2. Two-component adhesive **K** as in Claim 1, characterized in that the epoxy resin **A** is a liquid resin, in particular a bisphenol A diglycidyl ether, bisphenol F diglycidyl ether, or bisphenol A/F diglycidyl ether.
3. Two-component adhesive **K** as in Claim 1 or Claim 2, characterized in that for preparation of the epoxy adduct **B1**, a dimeric fatty acid, in particular at least one dimeric C4-C20 fatty acid, is used as the dicarboxylic acid, and bisphenol A diglycidyl ether, bisphenol F diglycidyl ether, or bisphenol A/F diglycidyl ether is used as the diglycidyl ether.
4. Two-component adhesive **K** as in any one of the preceding claims, characterized in that for preparation of the epoxy adduct **B2**, an aromatic alcohol is used that is selected from the group 2,2-bis(4-hydroxyphenyl)propane, bis(4-hydroxyphenyl)methane, bis(4-hydroxyphenyl)sulfone, hydroquinone, resorcinol, pyrocatechol, naphthohydroquinone, naphthoresorcinol, dihydroxynaphthalene, dihydroxyanthraquinone, dihydroxybiphenyl, 3,3-bis(*p*-hydroxyphenyl)phthalide, 5,5-bis(4-hydroxyphenyl)hexahydro-4,7-methanoindane, as well as all isomers of the aforementioned compounds, and bisphenol A diglycidyl ether, bisphenol F diglycidyl ether, or bisphenol A/F diglycidyl ether is used as the diglycidyl ether.

5. Two-component adhesive **K** as in any one of the preceding claims, characterized in that epoxy adduct **B** has a molecular weight of 700-6000 g/mol, preferably 900-4000 g/mol, in particular 1000-3300 g/mol.

6. Two-component adhesive **K** as in any one of the preceding claims, characterized in that the compound **C** is a polyurethane prepolymer **C2** having isocyanate groups, which is synthesized from at least one polyisocyanate **C1** and from at least one polyol, in particular at least one polyoxyalkylene polyol, preferably at least one polyoxyalkylene diol.

7. Two-component adhesive **K** as in any one of the preceding claims, characterized in that the reaction product **F** has the structure



wherein **B'** is structurally identical to **B**, except one hydroxyl groups is missing, and wherein **C'** is structurally identical to **C**, except all the isocyanate groups are missing, and wherein n+1 represents the number of isocyanate groups in **C**.

8. Two-component adhesive **K** as in any one of the preceding claims, characterized in that the curing agent **D** is a latent curing agent from the group dicyanodiamide, guanamine, guanidine, and aminoguanidine.

9. Two-component adhesive **K** as in any one of the preceding claims, characterized in that the compound **E** is a polyisocyanate or a polyurethane prepolymer having isocyanate groups, which is synthesized from at least one polyisocyanate and from at least one polyol, in particular at least one polyoxyalkylene polyol, preferably at least one polyoxyalkylene diol.

10. Two-component adhesive **K** as in any one of the preceding claims, characterized in that the total proportion of epoxy resin **A** and epoxy adduct **B** together is 10-60 wt.%, preferably 15-55 wt.%, based on the weight of the total adhesive **K**.

11. Two-component adhesive **K** as in any one of the preceding claims, characterized in that additionally at least one filler is present, in particular in a proportion of 5-30 wt.%, preferably 10-25 wt.%, based on the weight of the total adhesive **K**.

12. Two-component adhesive **K** as in any one of the preceding claims, characterized in that additionally at least one reactive diluent with epoxy groups is present.

13. Method for fabrication of a semifinished product **H**, characterized in that at least the component **K1** is heated to a temperature between 130°C and 60°C, in particular between 130°C and 80°C, preferably between 100°C and 90°C, the components **K1** and **K2** are mixed together, and the mixed adhesive **K** as in any one of Claims 1 to 12 is applied to a flat substrate **S1** and then the adhesive **K** is brought into contact with a flat substrate **S2**, in particular with application of pressure to at least one of substrates **S1** or **S2** during or after contact is made with substrate **S2**, so that the mixed adhesive **K** is placed between substrates **S1** and **S2**.

14. Method for fabrication of a semifinished product **H** as in Claim 13, characterized in that the flat substrate **S1** consists of the same material as the flat substrate **S2**.

15. Method for fabrication of a semifinished product **H** as in Claim 13 or Claim 14, characterized in that at least one of substrates **S1** or **S2** is sheet metal, in particular steel sheet or aluminum sheet, preferably oiled steel sheet or oiled aluminum sheet, where oiled steel sheet is particularly preferred.

16. Method for fabrication of a semifinished product **H** as in Claim 15, characterized in that the sheet metal has a thickness between 0.5 mm and 0.1 mm, in particular between 0.4 mm and 0.2 mm.

17. Method for fabrication of a semifinished product **H** as in any one of Claims 13 to 16, characterized in that the components **K1** and **K2** are mixed in such a ratio that the OH/NCO ratio is ≥ 2 , in particular 2-50.

18. Method for fabrication of a semifinished product **H** as in any one of Claims 13 to 17, characterized in that the semifinished product **H** is subsequently coiled into a roll and stored in the form of a coil;

or is cut to length and the semifinished product **H**, cut to length, is stored in the form of a stack.

19. Semifinished product **H**, characterized in that it is fabricated by a method as in any one of Claims 13 to 18.

20. Method for fabrication of a sandwich composite **S**, characterized in that a semifinished product **H** as in Claim 19 undergoes a forming process and is heated to a temperature between 130°C and 230°C, in particular between 170°C and 190°C.

21. Sandwich composite **S**, characterized in that it is fabricated according to a method as in Claim 20.

22. Use of a sandwich composite S as in Claim 21, characterized in that it is used in automotive assembly, in particular in auto body assembly.